



City of Pearland

2019 Drought Contingency and Water Emergency Management Plan



PREPARED FOR:

City of Pearland

PREPARED BY:

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FOREWORD

This Drought Contingency and Water Emergency Management Plan was prepared by Freese and Nichols, Inc., pursuant to Texas Commission on Environmental Quality (TCEQ) rules. For the purposes of regional coordination, the 2019 Drought Contingency Plan for the City of Houston (Houston) and the Gulf Coast Water Authority (GCWA) were consulted.

Questions regarding this Drought Contingency and Water Emergency Management Plan should be addressed to the following:

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This Drought Contingency and Water Emergency Management Plan is based on the Texas Administrative Code in effect on January 31, 2019. For retail public water suppliers providing water service to 3,300 or more connections, the drought contingency plan must be submitted to the TCEQ every five years. Contact information at the TCEQ, Houston and GCWA are the following:

Texas Commission on Environmental Quality
Office of Water
(512) 239-6696

City of Houston
Public Works
(832) 395-2500

Gulf Coast Water Authority
(409) 935-2438
(281) 337-3403



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APPENDICES

Appendix A	List of References
Appendix B	Texas Commission on Environmental Quality Rules on Drought Contingency Plans <ul style="list-style-type: none"> • Texas Administrative Code Title 30, Part 1, Chapter 288, Subchapter B, Rule §288.20 – Drought Contingency Plans for Municipal Uses by Public Water Suppliers • Texas Administrative Code Title 30, Part 1, Chapter 288, Subchapter B, Rule §288.22 – Drought Contingency Plans for Wholesale Water Suppliers
Appendix C	Letters to Region H Planning Group, City of Houston and GCWA
Appendix D	Adoption of Drought Contingency and Water Emergency Management Plan
Appendix E	Quick Reference Guide for Pearland’s 2019 Drought Contingency and Water Emergency Management Plan



1.0 INTRODUCTION AND OBJECTIVES

The City of Pearland has prepared this Drought Contingency and Water Emergency Management Plan in accordance with the requirements established by the Texas Commission on Environmental Quality (TCEQ), the City of Houston (Houston) and the Gulf Coast Water Authority (GCWA). For retail public water suppliers providing water service to 3,300 or more connections, the drought contingency plan must be submitted to the TCEQ every five years, and this Plan addresses all of the current TCEQ requirements for a drought contingency plan which are included in Appendix B. This Plan replaces the Plan included in Ordinance 1508 dated October 27, 2014.

The measures included in this Drought Contingency and Water Emergency Management Plan are intended to provide short-term water savings during drought or emergency conditions. Water savings associated with ongoing, long-term strategies are discussed in the *Water Conservation Plan for The City of Pearland*.²

The City owns and operates ten water wells that have a combined pumping capacity of 12,825 gallons per minute (gpm), or 18.47 million gallons per day (MGD). The current surface water contract for the Shadow Creek Water Plant is take-or-pay with a maximum day capacity of 6 MGD. The current surface water contract with the City of Houston routed through the Alice Water Plant is pay-as-you-go for 10 MGD. The combined groundwater and surface water system capacity is 34.5 MGD. The City has initiated design of a new 10 MGD surface water treatment plant west of State Highway 288.

Available city-wide ground and elevated storage capacities total 14.0 and 4.5 million gallons, respectively.

There are currently five wastewater treatment plants in the City of Pearland: JHEC, Longwood, Barry Rose, Far Northwest, and Southdown. The current, total combined capacity of the plants is 12.55 MGD.³

The purpose of this Drought Contingency and Water Emergency Management Plan is as follows:

- To conserve the available water supply in times of drought, water supply shortage, and emergency.
- To maintain supplies for domestic water use, sanitation, and fire protection.
- To protect and preserve public health, welfare, and safety.
- To minimize the adverse impacts of water supply shortages.
- To minimize the adverse impacts of emergency water supply conditions.
- To satisfy the requirements set forth by TCEQ and other agencies.



A drought is defined as an extended period of time when an area receives insufficient rainfall to replenish the water supply, causing water supply shortages. In the absence of drought response measures, water demands tend to increase during a drought due to increased outdoor irrigation. The severity of a drought depends on the degree of depletion of supplies and on the relationship of demand to available supplies.



2.0 DEFINITIONS

1. **AQUATIC LIFE** means a vertebrate organism dependent upon an aquatic environment to sustain its life.
2. **ATHLETIC FIELD** means a public sports competition field, the essential feature of which is turf grass, used primarily for organized sports practice, competition or exhibition events for schools; professional sports and league play sanctioned by the utility providing retail water supply.
3. **COMMERCIAL VEHICLE WASH FACILITY** means a permanently-located business that washes vehicles or other mobile equipment with water or water-based products, including but not limited to self-service car washes, full service car washes, roll-over/in-bay style car washes, and facilities managing vehicle fleets or vehicle inventory.
4. **COMMERCIAL WATER USER** means any customer that holds an account within the Commercial Water/Sewer rate classification.
5. **CONSERVATION** means those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve efficiency in the use of water, or increase the recycling and reuse of water, so that a supply is conserved and made available for future or alternative uses.
6. **CUSTOMER** means any person, corporation, or organization using water supplied by the City of Pearland.
7. **DESIGNATED OUTDOOR WATERING DAY** means a day prescribed by rule on which a person is permitted to irrigate outdoors.
8. **DOMESTIC WATER USE** means water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.
9. **DRIP IRRIGATION** is a type of micro-irrigation system that operates at low pressure and delivers water in slow, small drips to individual plants or groups of plants through a network of plastic conduits and emitters; also called trickle irrigation.



10. DROUGHT, for the purposes of this report, means an extended period of time when an area receives insufficient amounts of rainfall to replenish the water supply, causing water supply sources (in this case reservoirs) to be depleted.
11. DROUGHT CONTINGENCY AND WATER EMERGENCY RESPONSE means a strategy or combination of strategies for temporary supply management and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies required by Texas Administrative Code Title 30, Chapter 288, Subchapter B. This is sometimes called a drought contingency plan.
12. EXTRA-TERRITORIAL JURISDICTION (ETJ) means an area outside of the city limits where cities can regulate some activities.
13. FOUNDATION WATERING means an application of water to the soils directly abutting (within 2 feet) the foundation of a building, structure.
14. INTERACTIVE WATER FEATURES means water sprays, dancing water jets, waterfalls, dumping buckets, shooting water cannons, inflatable pools, temporary splash toys or pools, slip-n-slides, or splash pads that are maintained for recreation.
15. IRRIGATION SYSTEM means a permanently installed, custom-made, site-specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits installed below ground.
16. INDUSTRIAL WATER USE means the use of water in processes designed to convert materials of lower value into forms having greater usability and value.
17. LANDSCAPE means any plant material on a property, including any tree, shrub, vine, herb, flower, succulent, ground cover, grass or turf species, that is growing or has been planted out of doors.
18. MAJOR WATER USER means 1). a retail customer whose total water use in the preceding calendar year was within the 10 highest retail customers, 2). a retail customer whose water use is of a critical nature, or 3). any other retail customer deemed to be a Major Water User by Pearland staff.



19. NEW LANDSCAPE means: (a) vegetation installed at the time of the construction of a residential or commercial facility; (b) installed as part of a governmental entity's capital improvement project; or (c) installed to stabilize an area disturbed by construction.
20. NON-ESSENTIAL WATER USE means water uses that are not essential, nor required for the protection of public, health, safety, and welfare, including:
- irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
 - use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle, except with a water hose that has a shut-off nozzle; an exception is allowed for Commercial Vehicle Wash Facilities.
 - use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard- surfaced areas;
 - use of water to wash down buildings or structures for purposes other than immediate fire protection;
 - flushing gutters or permitting water to run or accumulate in any gutter or street;
 - use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
 - use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
 - failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
 - use of water from hydrants for construction purposes or any other purposes other than firefighting.
21. NON-RESIDENTIAL WATER CUSTOMER means all customers receiving water service from the City of Pearland that are not classified as residential, to include but not limited to irrigation, institutional, commercial, and industrial customers.



22. ORNAMENTAL FOUNTAIN means an artificially created structure from which a jet, stream, or flow of treated water emanates and is not typically utilized for the preservation of aquatic life.
23. POND is a still body of water with a surface area of 500 square feet or more, filled with non-potable water and not a swimming pool.
24. RETAIL CUSTOMER includes those customers to whom the City of Pearland provides retail water from a water meter.
25. RESIDENTIAL FACILITY means a site with four or fewer dwelling units.
26. SOAKER HOSE means a perforated or permeable garden-type hose or pipe that is laid above ground that provides irrigation at a slow and constant rate.
27. SPRINKLER means an above-ground water distribution device that may be attached to a garden hose.
28. SWIMMING POOL means any structure, basin, chamber, or tank including hot tubs, containing an artificial body of water for swimming, diving, or recreational bathing, and having a depth of two (2) feet or more at any point.
29. SYSTEM OPERATING CAPACITY means the total well capacity of Pearland's system (approximately 18.5 million gallons per day) plus the contracted peak amount of surface water deliveries (10 million gallons per day for the Alice surface water treatment plant and 6 million gallons per day for the Shadow Creek surface water treatment plant), for a total system operating capacity of approximately 34.5 million gallons per day. This total system operating capacity will increase or decrease with changes to Pearland's total well capacity and/or contracted peak amount of surface water supplies.

Abbreviations

Abbreviation	Full Nomenclature
GCWA	Gulf Coast Water Authority
TCEQ	Texas Commission on Environmental Quality
TWDB	Texas Water Development Board



3.0 TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

The TCEQ rules governing development of drought contingency plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.20 of the Texas Administrative Code, a current copy of which is included in Appendix B. For the purpose of these rules, a drought contingency plan is defined as “a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies.”¹

Minimum Requirements

TCEQ’s minimum requirements for drought contingency plans are addressed in the following subsections of this report:

- 288.20(a)(1)(A) – Provisions to Inform the Public and Provide Opportunity for Public Input – Section 4.1
- 288.20(a)(1)(B) – Provisions for Continuing Public Education and Information – Section 4.2
- 288.20(a)(1)(C) – Coordination with the Regional Water Planning Group – Section 4.6
- 288.20(a)(1)(D) – Criteria for Initiation and Termination of Drought Contingency and Water Emergency Response Stages – Section 4.3
- 288.20(a)(1)(E) – Drought Contingency and Water Emergency Response Stages – Section 4.3
- 288.20(a)(1)(F) – Specific, Quantified Targets for Water Use Reductions – Section 4.3
- 288.20(a)(1)(G) – Water Supply and Demand Management Measures for Each Stage – Section 4.3
- 288.20(a)(1)(H) – Procedures for Initiation and Termination of Drought Contingency and Water Emergency Response Stages – Section 4.3
- 288.20(a)(1)(I) - Procedures for Granting Variances – Section 4.4
- 288.20(a)(1)(J) - Procedures for Enforcement of Mandatory Restrictions – Section 4.5
- 288.20(a)(3) – Consultation with Wholesale Supplier – Sections 4.2, and 4.3
- 288.20(b) – Notification of Implementation of Mandatory Measures – Section 4.3
- 288.20(c) – Review and Update of Plan – Section 4.7



4.0 DROUGHT CONTINGENCY AND WATER EMERGENCY MANAGEMENT PLAN

4.1 PROVISIONS TO INFORM THE PUBLIC AND OPPORTUNITY FOR PUBLIC INPUT

The City of Pearland provided opportunity for public input in the development of this Drought Contingency and Water Emergency Management Plan. The City of Pearland gave careful consideration of said input into the adoption and implementation of the Plan and any revisions thereto. The City of Pearland provided opportunity for public comment on the Plan at a City Council Meeting held on January 27, 2020.

4.2 PROVISIONS FOR CONTINUING PUBLIC EDUCATION AND INFORMATION

The City will periodically provide the public with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. The City of Pearland will inform and educate the public about the Drought Contingency and Water Emergency Management Plan by the following means:

- Making the Plan available to the public through the City's web site (<https://www.pearlandtx.gov/>).
- Including information about the Drought Contingency and Water Emergency Management Plan on the City's web site (<https://www.pearlandtx.gov/>).
- Including information about the Drought Contingency and Water Emergency Management Plan on the City's Facebook Page.
- Notifying local organizations, schools, and civic groups that staff are available to make presentations on the Drought Contingency and Water Emergency Management Plan (usually in conjunction with presentations on water conservation programs).

At any time that the Drought Contingency and Water Emergency Management Plan is activated or the Drought Contingency and Water Emergency Management Plan changes, Pearland will notify local media of the issues, the Drought Response Stage or Water Emergency Response Stage (if applicable), and the specific actions required of the public. The information will also be publicized on the City's web site (<https://www.pearlandtx.gov/>). Billing inserts will also be used as appropriate.

4.3 INITIATION AND TERMINATION OF DROUGHT RESPONSE STAGES AND WATER EMERGENCY RESPONSE STAGES

Initiation of a Drought Response Stage and Water Emergency Response Stage



The City Manager or his/her official designee may order the implementation of a Drought Response Stage or Water Emergency Response Stage when one or more of the trigger conditions for that stage is met. The following actions will be taken when a Drought/Water Emergency Response Stage is initiated:

- The public will be notified through local media and the City's web site as described in Section 4.1.
- Houston and GCWA will be notified by e-mail with a follow-up letter that provides details of the reasons for initiation of the Drought/Water Emergency Response Stage.
- If any mandatory provisions of the Drought Contingency and Water Emergency Management Plan are activated, Pearland will notify the Executive Director of the TCEQ, the Deputy Director of Houston, and the General Manager of GCWA within 5 business days.

If Response Stages are initiated by the City of Houston or GCWA, the City of Pearland will consider implementing the similar stage of this Drought Contingency and Water Emergency Management Plan. For other trigger conditions internal to the City, the City Manager or his/her official designee may decide not to order the implementation of a Drought/Water Emergency Response Stage even though one or more of the trigger criteria for the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, the anticipation of replenished water supplies, or the anticipation that additional facilities will become available to meet needs. The reason for this decision should be documented.

Termination of a Drought Response Stage and Water Emergency Response Stage

The City Manager or his/her official designee may order the termination of a Drought/Water Emergency Response Stage when the conditions for termination are met or at his/her discretion. The following actions will be taken when a Drought/Water Emergency Response Stage is terminated:

- The public will be notified through local media and the City's web site as described in Section 4.1.
- Houston and GCWA will be notified by e-mail with a follow-up letter.
- If any mandatory provisions of the Drought Contingency and Water Emergency Management Plan that have been activated are terminated, Pearland will notify the Executive Director of the TCEQ, the Deputy Director of Houston and the General Manager of GCWA within 5 business days.



The City Manager or his/her official designee may decide not to order the termination of a Drought/Water Emergency Response Stage even though the conditions for termination of the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, or the anticipation of potential changed conditions that warrant the continuation of the drought stage. The reason for this decision should be documented.

Drought Response Stage and Water Emergency Response Stages and Measures

4.3.1 Stage 1

Initiation and Termination Conditions for Stage 1

The City may initiate Stage 1 if any one of the following conditions are met:

- The City total daily water demand equals or exceeds 60 percent of the current available System Operating Capacity (as highlighted in Section 1.0 and defined in Section 2.0) for three consecutive days.
- The City total daily water demand equals or exceeds 65 percent of the current available System Operating Capacity (as highlighted in Section 1.0 and defined in Section 2.0) on a single day.
- The Manager or his/her official designee feels that the initiation of Stage 1 is appropriate based on weather conditions, distribution and water supply system recovery, and/or unforeseen circumstances.
- The City of Houston or GCWA have initiated Stage 1.

Stage 1 may terminate when Houston or GCWA terminate its Stage 1 condition or when the circumstances that caused the City of Pearland's initiation of Stage 1 no longer prevail for a period of seven consecutive days. Stage 1 may terminate if Pearland's City Manager or his/her official designee feels that the termination of Stage 1 is appropriate based on weather conditions, distribution and water supply system recovery, and/or unforeseen circumstances.

Goal for Use Reduction and Actions Available under Stage 1

The goal for water use reduction under Stage 1 is a two percent (2%) reduction in the amount of water purchased from Houston and produced from the City's wells.



The City Manager or his/her official designee may order the implementation of any or all of the actions listed below, as deemed necessary to achieve a two percent reduction. Measures identified below are voluntary:

- Supply Management Measures:
 - Reduce flushing of water mains.
 - Review the problems that caused the initiation of Stage 1.
 - Identify alternative water sources and/or alternative delivery systems.
 - Consider initiating engineering studies to evaluate alternatives should conditions worsen.
- Voluntary Water Use Restrictions:
 - Residential and non-residential water customers are requested to voluntarily limit outdoor watering between 9:00 AM and 7:00 PM, voluntarily limited to twice per week on the days that align with Pearland customers' trash days, or if the customer doesn't have a trash day whichever day is illustrated in **Figure 1**. Residential and non-residential water customers in the western portion of the ETJ are requested to voluntarily limit outdoor watering between 9:00 AM and 7:00 PM, voluntarily limited to Tuesday and Friday. Residential and non-residential water customers in the central portion of the ETJ are requested to voluntarily limit outdoor watering between 9:00 AM and 7:00 PM, voluntarily limited to Wednesday and Saturday. Residential and non-residential water customers in the eastern portion of the ETJ are requested to voluntarily limit outdoor watering between 9:00 AM and 7:00 PM, voluntarily limited to Monday and Thursday. Excessive pooling and/or run-off from foundation watering is discouraged and is requested to not be allowed to run off of property and form a stream of water in a street for a distance of 50 feet or greater; or pool in a street or parking lot to a depth greater than one-quarter of an inch.
 - Water customers are requested to practice water conservation and to minimize or discontinue non-essential water use.
 - Increase public education efforts on ways to reduce water use.
 - Intensify efforts on leak detection and repair.
 - Notify major water users and work with them to achieve voluntary water use reductions.
 - Further accelerate public education efforts on ways to reduce water use.



- Encourage the public to wait until the current drought or emergency situation has passed before establishing new landscaping.
- Attended hand-held hoses with positive shut-off devices are allowed at all times.

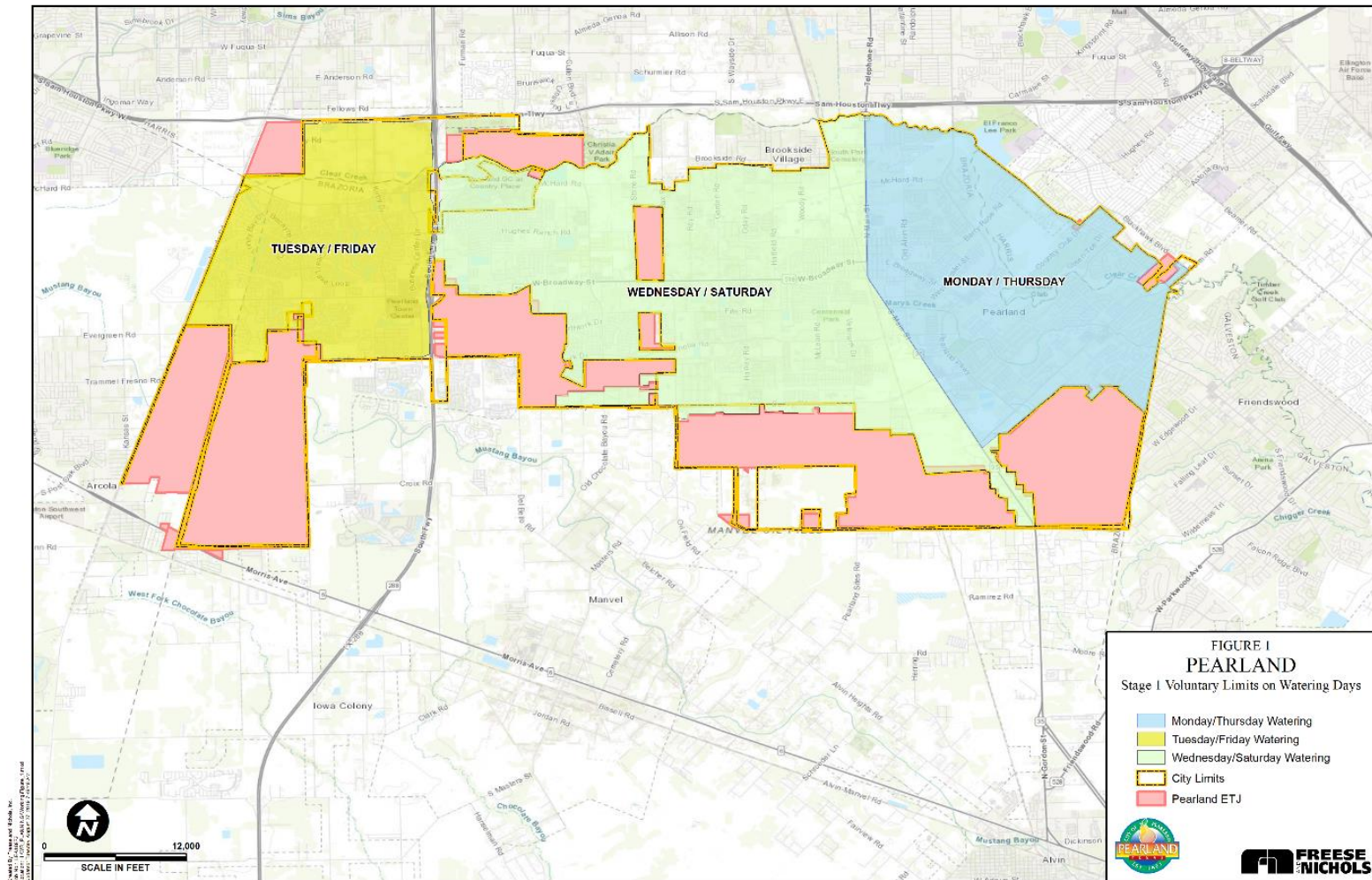


Figure 4-1: Stage 1 Voluntary Limits on Outdoor Watering Days



4.3.2 Stage 2

Initiation and Termination Conditions for Stage 2

The City may initiate Stage 2 if any one of the following conditions are met:

- The City total daily water demand equals or exceeds 70 percent of the current available System Operating Capacity (as highlighted in Section 1.0 and defined in Section 2.0) for three consecutive days.
- The City total daily water demand equals or exceeds 75 percent of the current available System Operating Capacity (as highlighted in Section 1.0 and defined in Section 2.0) on a single day.
- The Manager or his/her official designee feels that the initiation of Stage 2 is appropriate based on weather conditions, distribution and water supply system recovery, and/or unforeseen circumstances.
- The City of Houston or GCWA have initiated Stage 2.

Stage 2 may terminate when Houston or GCWA terminate its Stage 2 condition or when the circumstances that caused the City of Pearland's initiation of Stage 2 no longer prevail for a period of seven consecutive days. Stage 2 may terminate if Pearland's City Manager or his/her official designee feels that the termination of Stage 2 is appropriate based on weather conditions, distribution and water supply system recovery, and/or unforeseen circumstances.

Goals for Use Reduction and Actions Available under Stage 2

The goal for water use reduction under Stage 2 is a reduction of ten percent (10%) in the amount of water obtained from Houston and produced from the City's wells.

Pearland's City Manager or his/her official designee will consider implementing any action(s) required by the City of Houston or GCWA. In addition, Pearland's City Manager or his/her official designee may order the implementation of any or all of the actions listed below, as deemed necessary to achieve the specified percent reduction. Pearland must notify TCEQ, Houston and GCWA within five business days if these measures are implemented.

- Supply Management Measures:
 - Reduce or discontinue irrigation of public landscaped areas.



- Reduce or discontinue flushing of water mains.
- Fix or repair all reported and known leaks in the system within twelve (12) hours of notification or detection.
- Consider implementing viable alternative water supply strategies.
- **Mandatory Water Use Restrictions:**
 - Continue or initiate any actions available under the Water Conservation Plan and Stage 1.
 - Prohibit using water in such a manner as to allow runoff or other waste.
 - Prohibit residential and non-residential outdoor watering between 9:00 AM and 7:00 PM, limited to twice per week on the days that align with Pearland customers' trash days, or if the customer doesn't have a trash day whichever day is illustrated in **Figure 2**. Residential and non-residential water customers in the western portion of the ETJ are prohibited from outdoor watering between 9:00 AM and 7:00 PM, limited to Tuesday and Friday. Residential and non-residential water customers in the central portion of the ETJ are prohibited from watering between 9:00 AM and 7:00 PM, limited to Wednesday and Saturday. Residential and non-residential water customers in the eastern portion of the ETJ are prohibited from outdoor watering between 9:00 AM and 7:00 PM, limited to Monday and Thursday. Excessive pooling and/or run-off from foundation watering is prohibited and shall not be allowed to run off of property and form a stream of water in a street for a distance of 50 feet or greater; or pool in a street or parking lot to a depth greater than one-quarter of an inch. Exceptions are as follows:
 - New landscaping (first year), and new plantings of shrubs and trees (first year) may be watered for up to 2 hours on any day by attended hand-held hose with positive shut-off device (no open-ended hoses or unattended hoses), a soaker hose, or a dedicated zone using a drip irrigation system.
 - Locations using other sources of water supply for irrigation may irrigate without restrictions. If a golf course utilizes a water source other than the potable water provided by the City, then the facility shall not be subject to these regulations. The use of treated effluent recycled from the City's wastewater treatment facility (non-potable/reuse water) is permissible.



- Registered and properly functioning ET/Smart irrigation systems and drip irrigation systems may irrigate without restrictions.
- Irrigation of landscaped areas or commercial plant nurseries is permitted at any time by means of a faucet filled bucket or water can of five (5) gallons or less, a drip irrigation system, soaker hose, or by attended hand-held hose with positive shut-off device (no open-ended hoses or unattended hoses). Excessive pooling and/or run-off from automatic or drip irrigation systems is prohibited and shall not be allowed to run off of property and form a stream of water in a street for a distance of 50 feet or greater; or pool in a street or parking lot to a depth greater than one-quarter of an inch.
- Use of water to wash any motor vehicle, four-wheeler, boat, trailer, airplane, or other vehicle is prohibited except on designated outdoor watering days. Washing is allowed at any time on designated watering days for applicable residential address. Such washing, when allowed, shall be done with a hand-held bucket and attended hand-held hose with positive shut-off device (no open-ended hoses or unattended hoses). Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station.
- Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountain or pond is equipped with a recirculation system.
- Use of water from fire hydrants shall be limited to the fire fighting activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under special permit from the City of Pearland.
- Use of water to stabilize foundations is prohibited except on designated outdoor watering and is prohibited on any day between 9:00 AM and 7:00 PM. Watering is permitted by means of an attended hand-held hose with positive shut-off device (no open-ended hoses or unattended hoses); or using a soaker hose or drip irrigation system placed within 24 inches of the foundation that does not produce a spray of water above the ground. Excessive pooling and/or run-off from foundation watering is prohibited and shall not be allowed to run off of property and form a stream of water in a street for a distance of 50



feet or greater; or pool in a street or parking lot to a depth greater than one-quarter of an inch.

- The following uses of water are defined as nonessential and are prohibited:
 - Washing down of any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard surfaced area;
 - Washing down buildings or structures for purposes other than immediate fire protection;
 - Use of water for dust control;
 - Flushing of gutters or permitting water to run or accumulate in any gutter or street;
 - Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).
- Prohibit hydroseeding, hydromulching, and sprigging.
- Prohibit the filling, draining and refilling of existing swimming pools, wading pools, Jacuzzi and hot tubs except to maintain structural integrity, proper operation and maintenance or to alleviate a public safety risk. Existing pools may add water to replace losses from normal use and evaporation.
- Consider initiating a rate surcharge for all water use over a certain level.
- Attended hand-held hoses with positive shut-off devices are allowed at all times.

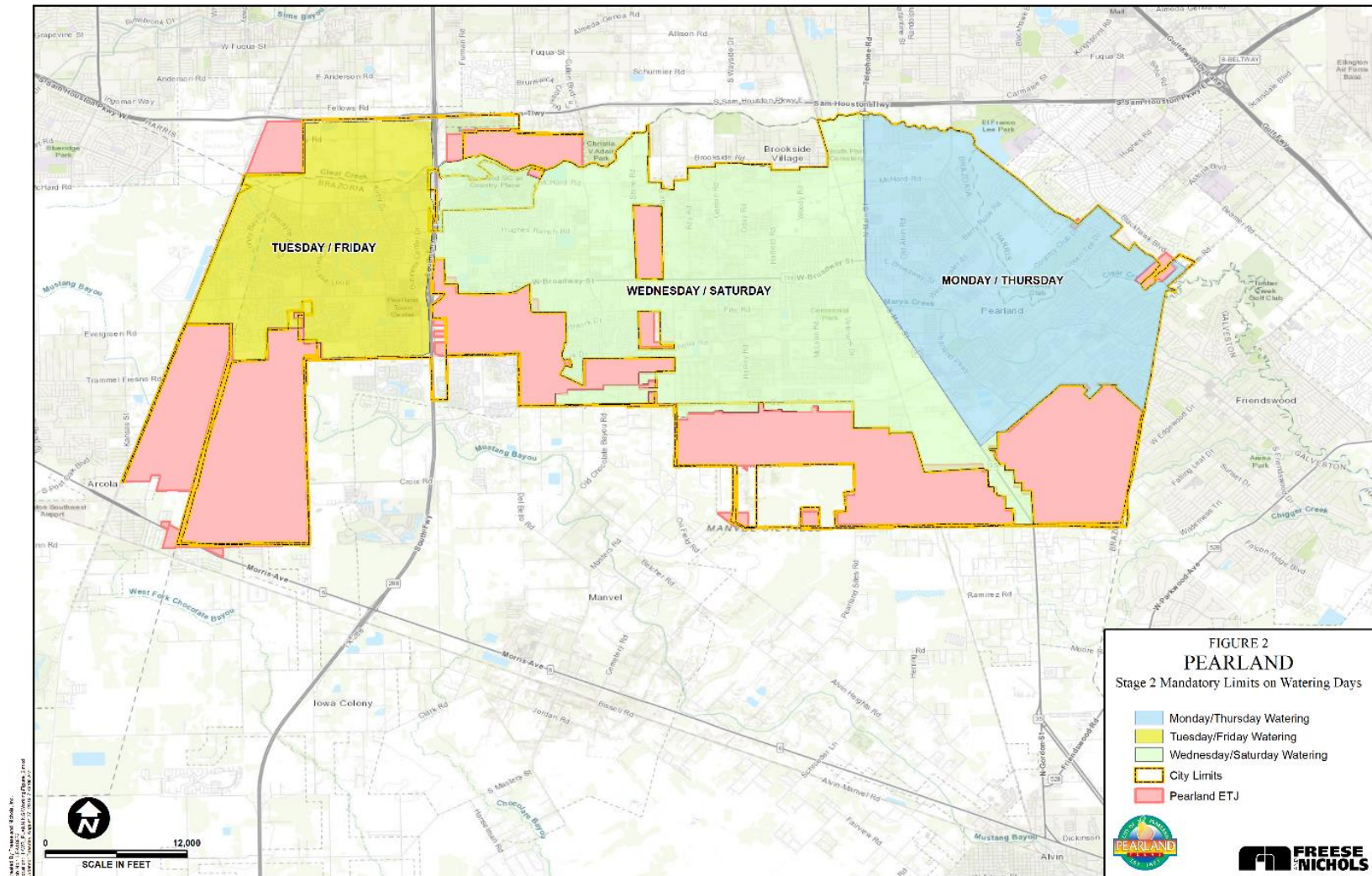


Figure 4-2: Stage 2 Mandatory Limits on Outdoor Watering Days



4.3.3 Stage 3

Initiation and Termination Conditions for Stage 3

The City may initiate Stage 3 if any one of the following conditions are met:

- The City total daily water demand equals or exceeds 80 percent of the current available System Operating Capacity (as highlighted in Section 1.0 and defined in Section 2.0) for three consecutive days.
- The City total daily water demand equals or exceeds 85 percent of the current available System Operating Capacity (as highlighted in Section 1.0 and defined in Section 2.0) on a single day.
- The Manager or his/her official designee feels that the initiation of Stage 3 is appropriate based on weather conditions, distribution and water supply system recovery, and/or unforeseen circumstances.
- The City of Houston or GCWA have initiated Stage 3.

Stage 3 may terminate when Houston or GCWA terminate its Stage 3 condition or when the circumstances that caused the City of Pearland's initiation of Stage 3 no longer prevail for a period of seven consecutive days. Stage 3 may terminate if Pearland's City Manager or his/her official designee feels that the termination of Stage 3 is appropriate based on weather conditions, distribution and water supply system recovery, and/or unforeseen circumstances.

Goals for Use Reduction and Actions Available under Stage 3

The goal for water use reduction under Stage 3 is a reduction of twenty percent (20%) in the amount of water obtained from Houston from the previous annual payment period prior to drought restrictions.

Pearland's City Manager or his/her official designee will consider implementing any action(s) required by the City of Houston or GCWA. In addition, Pearland's City Manager or his/her official designee may order the implementation of any or all of the actions listed below, as deemed necessary to achieve the specified percent reduction. Pearland must notify TCEQ, Houston and GCWA within five business days if these measures are implemented.

- Supply Management Measures:
 - Reduce or discontinue irrigation of public landscaped areas.



- Reduce or discontinue flushing of water mains.
- Fix or repair all reported and known leaks in the system within twelve (12) hours of notification or detection.
- Mandatory Water Use Restrictions:
 - Continue or initiate any actions available under the Water Conservation Plan and Stage 1 and Stage 2.
 - Consider implementing viable alternative water supply strategies.
 - Prohibit washing of vehicles except at a Commercial Vehicle Wash Facility, or as necessary for health, sanitation, or safety reasons.
 - Prohibit residential and non-residential outdoor watering between 9:00 AM and 7:00 PM, limited to once per week on the days illustrated in **Figure 3**. Residential and non-residential water customers in the western portion of the ETJ are prohibited from outdoor watering between 9:00 AM and 7:00 PM, limited to Tuesday. Residential and non-residential water customers in the central portion of the ETJ are prohibited from outdoor watering between 9:00 AM and 7:00 PM, limited to Wednesday. Residential and non-residential water customers in the eastern portion of the ETJ are prohibited from outdoor watering between 9:00 AM and 7:00 PM, limited to Thursday. Excessive pooling and/or run-off from foundation watering is prohibited and shall not be allowed to run off of property and form a stream of water in a street for a distance of 50 feet or greater; or pool in a street or parking lot to a depth greater than one-quarter of an inch. Exceptions are as follows:
 - New landscaping (first year), and new plantings of shrubs and trees (first year) may be watered for up to 2 hours on any day by attended hand-held hose with positive shut-off device (no open-ended hoses or unattended hoses), a soaker hose, or a dedicated zone using a drip irrigation system.
 - Locations using other sources of water supply for irrigation may irrigate without restrictions. If a golf course utilizes a water source other than the potable water provided by the City, then the facility shall not be subject to these regulations. The use of treated effluent recycled from the City's wastewater treatment facility (non-potable/reuse water) is permissible.



- Registered and properly functioning ET/Smart irrigation systems and drip irrigation systems may irrigate without restrictions.
- Prohibit the permitting of private pools. Pools already permitted may be completed and filled with water. Existing private and public pools may add water to maintain pool levels but may not be drained and refilled.
- Require all commercial water users to reduce water use by a percentage established by Pearland's City Manager or his/her official designee.
- Landscape watering of parks, golf courses, and athletic fields with potable water is prohibited. Exception for parks, golf course greens and tee boxes, and athletic fields, which may be watered by attended hand-held hose with positive shut-off device (no open-ended hoses or unattended hoses) as needed. Variances may be granted by the water provider under special circumstances.
- Prohibit the operation of interactive water features such as water sprays, dancing water jets, waterfalls, dumping buckets, shooting water cannons, or splash pads that are maintained for public recreation.
- Attended hand-held hoses with positive shut-off devices are allowed at all times.

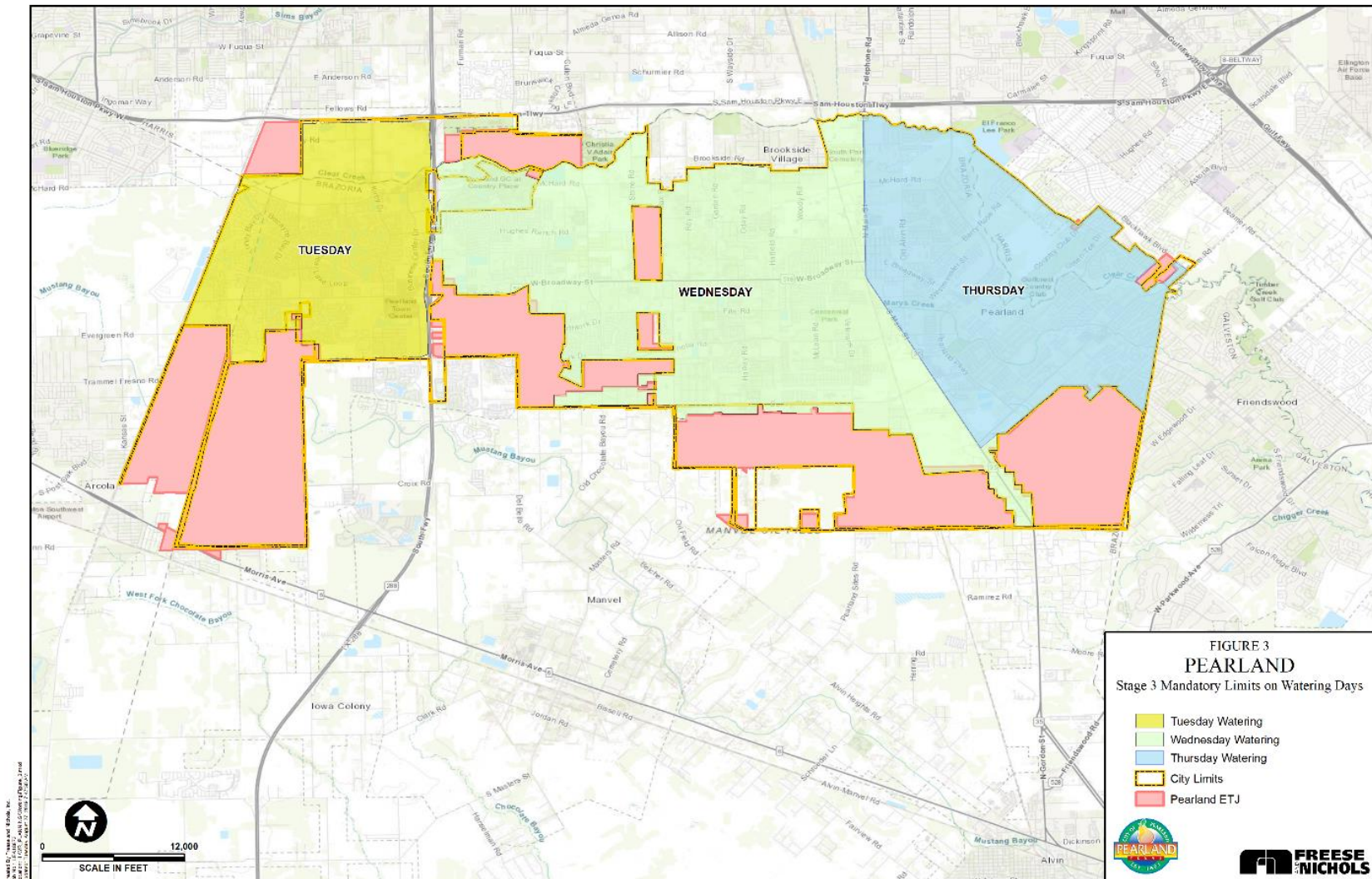


Figure 4-3: Stage 3 Mandatory Limits on Outdoor Watering Days



4.3.4 Stage 4

Initiation and Termination Conditions for Stage 4

The City may initiate Stage 4 if any one of the following conditions are met:

- The City experiences major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service.
- The City experiences natural or man-made contamination of the water supply source(s).
- The City total daily water demand equals or exceeds 90 percent of the current available System Operating Capacity (as highlighted in Section 1.0 and defined in Section 2.0) for three consecutive days.
- The City total daily water demand equals or exceeds 95 percent of the current available System Operating Capacity (as highlighted in Section 1.0 and defined in Section 2.0) on a single day.
- The Manager or his/her official designee feels that the initiation of Stage 4 is appropriate based on weather conditions, distribution and water supply system recovery, and/or unforeseen circumstances.
- The City of Houston or GCWA have initiated Stage 4.

Stage 4 may terminate when Houston or GCWA terminate its Stage 4 condition or when the circumstances that caused the City of Pearland's initiation of Stage 4 no longer prevail. Stage 4 may terminate if Pearland's City Manager or his/her official designee feels that the termination of Stage 4 is appropriate based on weather conditions, distribution and water supply system recovery, and/or unforeseen circumstances.

Goals for Use Reduction and Actions Available under Stage 4

The goal for water use reduction under Stage 4 is a reduction of thirty five percent (35%) in the amount of water obtained from Houston from the previous annual payment period prior to drought restrictions, or a greater reduction if deemed necessary by the City Manager or his/her official designee.

Pearland's City Manager or his/her official designee will consider implementing any action(s) required by the City of Houston or GCWA. In addition, Pearland's City Manager or his/her official designee may order



the implementation of any of the actions listed below, as deemed necessary. Measures can be initiated for all or part of the City, as appropriate. Pearland must notify TCEQ, Houston and GCWA within five business days if these measures are implemented.

- Supply Management Measures:
 - Reduce or discontinue irrigation of public landscaped areas.
 - Reduce or discontinue flushing of water mains.
 - Fix or repair all reported and known leaks in the system within twelve (12) hours of notification or detection.
- Mandatory Water Use Restrictions:
 - Continue or initiate any actions available under the Water Conservation Plan and Stage 1, Stage 2, and Stage 3.
 - Implement viable alternative water supply strategies.
 - All landscape irrigation use is prohibited.
 - All non-essential water use is prohibited.
 - All aesthetic water use is prohibited.
- All commercial and institutional water use customers are encouraged to practice conservation measures and may be required to cease certain operations as directed by Pearland's City Manager or his/her official designee.

4.4 PROCEDURES FOR GRANTING VARIANCES TO THE PLAN

The City Manager or his/her official designee may grant temporary variances for existing water uses otherwise prohibited under this Drought Contingency and Water Emergency Management Plan if one or more of the following conditions are met:

- Failure to grant such a variance would cause an emergency condition adversely affecting health, sanitation, or fire safety for the public or the person or entity requesting the variance.
- Compliance with this Plan cannot be accomplished due to technical or other limitations.
- Alternative methods that achieve the same level of reduction in water use can be implemented.



Variances shall be granted or denied at the discretion of the City Manager or his/her official designee. All petitions for variances should be in writing and should include the following information:

- Name and address of the petitioner(s)
- Purpose of water use
- Specific provisions from which relief is requested
- Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance
- Description of the relief requested
- Period of time for which the variance is sought
- Alternative measures that will be taken to reduce water use
- Other pertinent information.

4.5 PROCEDURES FOR ENFORCING MANDATORY WATER USE RESTRICTIONS

Mandatory water use restrictions may be imposed in Stage 2, Stage 3, and Stage 4. Appendix D contains the ordinance adopting the Drought Contingency and Water Emergency Management Plan, including enforcement of same.

4.6 COORDINATION WITH THE REGIONAL WATER PLANNING GROUP, HOUSTON AND GCWA

The City of Pearland's retail service area is located entirely within the Region H water planning area. The City has provided a copy of this Plan to the Region H Water Planning Group, Houston and GCWA. A copy of each letter is included in Appendix C.

4.7 REVIEW AND UPDATE OF DROUGHT CONTINGENCY AND WATER EMERGENCY MANAGEMENT PLAN

As required by TCEQ rules, the City of Pearland must review the Drought Contingency and Water Emergency Management Plan every five years. The Plan will be updated as appropriate based on new or updated information.



Appendix A

List of References



APPENDIX A

LIST OF REFERENCES

1. Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter B, Rules 288.20 and 288.22, downloaded from [http://texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=288&sc_h=B&rl=Y](http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=288&sc_h=B&rl=Y), January 2019.
2. City of Pearland, “Water Conservation Plan”, prepared by Freese and Nichols, Inc., January 2020.
3. City of Pearland, “2018 Water and Wastewater Impact Fee Update”, prepared by Freese and Nichols, Inc., April 2018.



Appendix B

Texas Commission on Environmental Quality Rules on Drought Contingency Plans



APPENDIX B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES ON DROUGHT CONTINGENCY PLANS

TITLE 30

ENVIRONMENTAL QUALITY

PART 1

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288

WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS,
GUIDELINES AND REQUIREMENTS

SUBCHAPTER B

DROUGHT CONTINGENCY PLANS

RULE §288.20

Drought Contingency Plans for Municipal Uses by Public Water Suppliers

(a) A drought contingency plan for a retail public water supplier, where applicable, must include the following minimum elements.

(1) Minimum requirements. Drought contingency plans must include the following minimum elements.

(A) Preparation of the plan shall include provisions to actively inform the public and affirmatively provide opportunity for public input. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.

(B) Provisions shall be made for a program of continuing public education and information regarding the drought contingency plan.

(C) The drought contingency plan must document coordination with the regional water planning groups for the service area of the retail public water supplier to ensure consistency with the appropriate approved regional water plans.

(D) The drought contingency plan must include a description of the information to be monitored by the water supplier, and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.



(E) The drought contingency plan must include drought or emergency response stages providing for the implementation of measures in response to at least the following situations:

- (i) reduction in available water supply up to a repeat of the drought of record;
- (ii) water production or distribution system limitations;
- (iii) supply source contamination; or
- (iv) system outage due to the failure or damage of major water system components (e.g., pumps).

(F) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this subparagraph are not enforceable.

(G) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:

- (i) curtailment of non-essential water uses; and
- (ii) utilization of alternative water sources and/or alternative delivery mechanisms with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).

(H) The drought contingency plan must include the procedures to be followed for the initiation or termination of each drought response stage, including procedures for notification of the public.

(I) The drought contingency plan must include procedures for granting variances to the plan.

(J) The drought contingency plan must include procedures for the enforcement of mandatory water use restrictions, including specification of penalties (e.g., fines, water rate surcharges, discontinuation of service) for violations of such restrictions.

(2) Privately-owned water utilities. Privately-owned water utilities shall prepare a drought contingency plan in accordance with this section and incorporate such plan into their tariff.



(3) Wholesale water customers. Any water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan appropriate provisions for responding to reductions in that water supply.

(b) A wholesale or retail water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.

(c) The retail public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as the adoption or revision of the regional water plan.

Source Note: The provisions of this §288.20 adopted to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384



TITLE 30

ENVIRONMENTAL QUALITY

PART 1

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288

WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS,
GUIDELINES AND REQUIREMENTS

SUBCHAPTER B

DROUGHT CONTINGENCY PLANS

RULE §288.22

Drought Contingency Plans for Wholesale Water Suppliers

(a) A drought contingency plan for a wholesale water supplier must include the following minimum elements.

(1) Preparation of the plan shall include provisions to actively inform the public and to affirmatively provide opportunity for user input in the preparation of the plan and for informing wholesale customers about the plan. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.

(2) The drought contingency plan must document coordination with the regional water planning groups for the service area of the wholesale public water supplier to ensure consistency with the appropriate approved regional water plans.

(3) The drought contingency plan must include a description of the information to be monitored by the water supplier and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.

(4) The drought contingency plan must include a minimum of three drought or emergency response stages providing for the implementation of measures in response to water supply conditions during a repeat of the drought-of-record.



(5) The drought contingency plan must include the procedures to be followed for the initiation or termination of drought response stages, including procedures for notification of wholesale customers regarding the initiation or termination of drought response stages.

(6) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this paragraph are not enforceable.

(7) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:

(A) pro rata curtailment of water deliveries to or diversions by wholesale water customers as provided in Texas Water Code, §11.039; and

(B) utilization of alternative water sources with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).

(8) The drought contingency plan must include a provision in every wholesale water contract entered into or renewed after adoption of the plan, including contract extensions, that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code, §11.039.

(9) The drought contingency plan must include procedures for granting variances to the plan.

(10) The drought contingency plan must include procedures for the enforcement of any mandatory water use restrictions including specification of penalties (e.g., liquidated damages, water rate surcharges, discontinuation of service) for violations of such restrictions.

(b) The wholesale public water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.

(c) The wholesale public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as adoption or revision of the regional water plan.



Appendix C

Letters to Region H Planning Group, Houston and GCWA



January 28, 2020

Mr. Mark Evans, Chair
Region H Water Planning Group
c/o North Harris County Regional Water Authority
3648 Cypress Creek Parkway, Suite 110
Houston, TX 77068

Dear Mr. Evans:

Enclosed please find a copy of the recently updated Drought Contingency and Water Emergency Management Plan for the City of Pearland. I am submitting a copy of this Plan to the Region H Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The City Council of Pearland adopted the Plan on January 27, 2020.

Sincerely,

Julian Kelly
Public Works Superintendent - Water
City of Pearland



January 28, 2020

Paula Paciorek, Water Conservation Manager
City of Houston
611 Walker, 21st Floor
Houston, TX 77002

Dear Ms. Paciorek:

Enclosed please find a copy of the recently updated Drought Contingency and Water Emergency Management Plan for the City of Pearland. I am submitting a copy of this Plan to the City of Houston in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The City Council of Pearland adopted the Plan on January 27, 2020.

Sincerely,

Julian Kelly
Public Works Superintendent - Water
City of Pearland



January 28, 2020

Brandon Wade, General Manager
Gulf Coast Water Authority
3630 FM 1765
Texas City, TX 77591

Dear Mr. Wade:

Enclosed please find a copy of the recently updated Drought Contingency and Water Emergency Management Plan for the City of Pearland. I am submitting a copy of this Plan to the Gulf Coast Water Authority in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The City Council of Pearland adopted the Plan on January 27, 2020.

Sincerely,

Julian Kelly
Public Works Superintendent - Water
City of Pearland



Appendix D

Adoption of Drought Contingency and Water Emergency Management Plan



Appendix E

Quick Reference Guide for Pearland's 2019 Drought Contingency and Water Emergency Management Plan

CITY OF PEARLAND DROUGHT CONTINGENCY PLAN SUMMARY - 2019				
Stage	Trigger	Termination	Goal for Reduction in Water Use	Appropriate Actions
1	Discretion of City Manager.	Discretion of City Manager.	2%	Notify public that a Stage 1 drought condition exists. Continue actions under Water Conservation Plan.
				Residential and non-residential customers requested to voluntarily limit outdoor watering between 9:00 AM and 7:00 PM, voluntarily limited to twice per week on their trash days.
	System demand exceeds 60% of available System Operating Capacity for 3 consecutive days.	7 days without any trigger conditions.		Intensify efforts on leak detection and repair.
				Increase public awareness of drought condition and measures to reduce demand.
	System demand exceeds 65% of available System Operating Capacity on a single day.	City of Houston has terminated Stage 1.		Encourage the public to wait until the current drought or emergency situation has passed before establishing new landscaping.
				Request voluntary reductions in water use by customers, and to minimize or discontinue non-essential water use.
	City of Houston or GCWA have initiated Stage 1.			Notify TCEQ, City of Houston and GCWA of initiation and termination of Stage 1, documenting reason(s) for decision.
2	Discretion of City Manager.	Discretion of City Manager.	10%	Notify public that a Stage 2 drought condition exists. Continue actions under Water Conservation Plan.
				Continue or initiate any actions available under Stage 1.
	System demand exceeds 70% of available System Operating Capacity for 3 consecutive days.	7 days without any trigger conditions.		Prohibit residential and non-residential outdoor watering between 9:00 AM and 7:00 PM, limited to twice per week on customers' trash days.
				Operation of ornamental fountain or pond for aesthetic or scenic purposes is prohibited, with exceptions.
	System demand exceeds 75% of available System Operating Capacity on a single day.	City of Houston has terminated Stage 2.		Use of water from fire hydrants is limited to fire fighting, with exceptions.
				Consider initiating a rate surcharge for all water use over a certain level.
	City of Houston or GCWA have initiated Stage 2.			Notify TCEQ, City of Houston and GCWA of initiation and termination of Stage 2, documenting reason(s) for decision.
3	Discretion of City Manager.	Discretion of City Manager.	20%	Notify public that a Stage 3 drought condition exists. Continue actions under Water Conservation Plan.
				Continue or initiate any actions available under Stages 1 and 2.
	System demand exceeds 80% of available System Operating Capacity for 3 consecutive days.	7 days without any trigger conditions.		Prohibit residential and non-residential outdoor watering between 9:00 AM and 7:00 PM, limited to once per week on designated days.
				Require all commercial users to reduce usage by a percentage established by the City Manager.
	System demand exceeds 85% of available System Operating Capacity on a single day.	City of Houston has terminated Stage 3.		Prohibit the permitting of private pools.
				Landscape watering of parks, golf courses and athletic fields is prohibited, with exceptions.
	City of Houston or GCWA have initiated Stage 3.			Notify TCEQ, City of Houston and GCWA of initiation and termination of Stage 3, documenting reason(s) for decision.
4	Discretion of City Manager.	Discretion of City Manager.	35%	Notify public that a Stage 4 drought condition exists. Continue actions under Water Conservation Plan.
	Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service.			Continue or initiate any actions available under Stages 1, 2 and 3.
	Natural or man-made contamination of the water supply source(s).	Triggering conditions no longer prevail.		All landscape irrigation use is prohibited.
				All non-essential water use is prohibited.
	System demand exceeds 90% of available System Operating Capacity for 3 consecutive days.	City of Houston has terminated emergency water shortage condition.		All commercial and institutional water customers are encouraged to practice water conservation measures and may be required to cease certain operations as directed by the City Manager.
	System demand exceeds 95% of available System Operating Capacity on a single day.			
	City of Houston or GCWA have initiated emergency water shortage.			